

NS-2 DEWATERING OPERATIONS



BMP Objectives

- ☒ Perimeter Control
- ☐ Slope Protection
- ☐ Borrow and Stockpiles
- ☒ Drainage Areas
- ☒ Sediment Trapping
- ☐ Stream Protection
- ☐ Temporary Stabilizing
- ☐ Permanent Stabilizing

Definition and Purpose

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and stormwater (accumulated precipitation) must be removed from a work location so that construction work may be accomplished.

Appropriate Applications

These practices are implemented for discharges of non-stormwater and stormwater from construction sites. Non-stormwater includes, but is not limited to, groundwater, water from cofferdams, dewatering of piles, water diversions, and waters used during construction activities that must be removed from a work area.

Practices identified in this section are also appropriate for implementation when managing the removal of stormwater from depressed areas at a construction site. Stormwater mixed with non-stormwater should be managed as non-stormwater.

Limitations

- Dewatering operations for non-stormwater will require, and must comply with, applicable local permits, project-specific permits, and regulations.
- Site conditions will dictate design and use of dewatering operations.
- A dewatering plan shall be submitted as part of the SWPPP, detailing the location of dewatering activities and equipment, as well as discharge point.
- The controls discussed in this BMP address sediment only. If the presence of polluted water with hazardous substances is identified in the contract, the Contractor shall implement dewatering pollution controls as required by the contract documents. If the quality of water to be removed by dewatering is not identified as polluted in the contract documents, but is later determined by observation or testing to be polluted, the Contractor shall notify the Engineer and the Stormwater Quality Coordinator.

- When possible, avoid dewatering discharges by using the water for dust control or by infiltrating it, if appropriate.

Design Parameters

- Dewatering for stormwater shall follow this BMP and use treatment measures specified herein.
- IDEQ can authorize, with whatever conditions deemed necessary, short-term activities even though such activities can result in a violation of IDAPA 58.01.02 Water Quality Standards. Short-term activities are associated with the regeneration, growing, and harvesting of trees and timber.
 - No activity can be authorized unless:
 - The activity is essential to the protection or promotion of public interest.
 - No permanent or long-term injury of beneficial uses is likely as a result of the activity.
 - Activities eligible for authorization include, but are not limited to:
 - Wastewater treatment facility maintenance
 - Fish eradication projects
 - Mosquito abatement projects
 - Algae and weed control projects
 - Dredge and fill activities
 - Maintenance of existing structures
 - Limited road and trail reconstruction
 - Soil stabilization measures
 - Habitat enhancement structures, and
 - Activities which result in overall enhancement or maintenance of beneficial uses.
- The discharge of stormwater to a water body or storm drain is subject to the requirements of the Construction General Permit. Sediment control and other appropriate BMPs must be employed when this water is discharged.
- Discharges must comply with regional and watershed-specific discharge requirements.
- Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges must not cause erosion at the discharge point.
- Dewatering records shall be maintained for a period of 3 years.

Sediment Treatment

A variety of methods can be used to treat water during dewatering operations from the construction site. This section presents several devices that provide options to achieve sediment removal. The size of particles present in the sediment and Construction General Permit or receiving water limitations on sediment are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate.

Tank size will depend on flow volume, constituents of concern, and residency period required. A qualified Engineer is required to properly size and design dewatering equipment.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications.
- Repair or replace to ensure the BMPs function as designed.
- Accumulated sediment removed during the maintenance of a dewatering device may be either spread on-site and stabilized or disposed of at a disposal site as approved by the Engineer.
- Accumulated sediment that is commingled with other pollutants must be disposed of in accordance with all applicable laws and regulations and as approved by the Engineer.

Category 1: Constructed Settling Technologies

The devices discussed in this category are to be used exclusively for dewatering operations.

Sediment/Desilting Basin (SC-9)

Description

A sediment basin is a temporary basin with a controlled release structure that is formed by excavation and/or construction of an embankment to detain sediment-laden runoff and allow sediment to settle out before discharging.

Appropriate Applications

- Effective for the removal of trash, gravel, sand, and silt and some metals that settle out with the sediment.

Implementation

- Excavation and construction of related facilities is required.
- Temporary sediment basins must be fenced if safety is a concern.
- Outlet protection is required to prevent erosion at the outfall location.

Maintenance

- Maintenance is required for safety fencing, vegetation, embankment, and inlet and outfall structures, as well as other features.
- Removal of sediment is required when the design capacity is reduced by 50 percent.

Sediment Trap (SC-10)

Description

A sediment trap is a temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging.

Appropriate Applications

- Effective for the removal of large and medium sized particles (sand and gravel) and some metals that settle out with the sediment.

Implementation

- Excavation and construction of related facilities is required.
- Trap inlets shall be located to maximize the travel distance to the trap outlet.
- Rock or vegetation shall be used to protect the trap outlets against erosion.

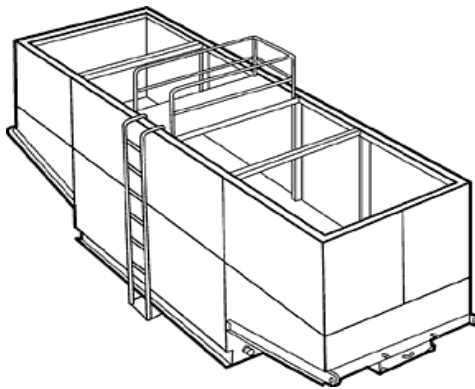
Maintenance

- Maintenance is required for vegetation, embankment, and inlet and outfall structures, as well as other features.
- Removal of sediment is required when the design capacity is reduced by 50 percent.

Category 2: Mobile Settling Technologies

The devices discussed in this category are typical of tanks that can be used for sediment treatment of dewatering operations. A variety of vendors supply these tanks.

Weir Tank



Description

A weir tank separates water and waste by using weirs. The configuration of the weirs (over and under weirs) maximizes the residence time in the tank and determines the waste to be removed from the water, such as oil, grease, and sediments.

Appropriate Applications

The tank removes trash, some settleable solids (gravel, sand, and silt), some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

Implementation

- Tanks are delivered to the site by the vendor, who can provide assistance with setup and operation.

- Tank size will depend on flow volume, constituents of concern, and residency period required. An Engineer is required to properly size and design weir tanks.

Maintenance

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal must be by licensed waste disposal company.

Dewatering Tank***Description***

A dewatering tank removes debris and sediment. Flow enters the tank through the top, passes through a fabric filter, and is discharged through the bottom of the tank. The filter separates the solids from the liquids.

Appropriate Applications

The tank removes trash, gravel, sand, and silt, some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

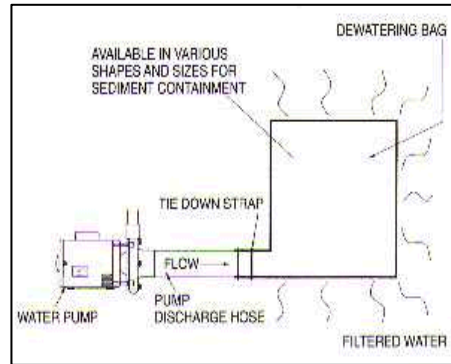
Implementation

- Tanks are delivered to the site by the vendor, who can provide assistance with setup and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. An Engineer is required to appropriately size tank.

Maintenance

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal must be by licensed waste disposal company.

Category 3: Basic Filtration Technologies**Gravity Bag Filter**



Description

A gravity bag filter, also referred to as a dewatering bag, is a square or rectangular bag made of non-woven geotextile fabric that collects sand, silt, and fines.

Appropriate Applications

- Effective for the removal of sediments (gravel, sand, and silt). Some metals are removed with the sediment.

Implementation

- Water is pumped into one side of the bag and seeps through the bottom and sides of the bag.
- A secondary barrier, such as a rock filter bed barrier, is placed beneath and beyond the edges of the bag to capture sediments that escape the bag.

Maintenance

- Replacement of the bag is required when it no longer filters sediment or passes water at a reasonable rate.

Category 4: Advanced Filtration Technologies

Sand Media Particulate Filter



Description

Water is treated by passing it through canisters filled with sand media. Generally, sand filters provide a final level of treatment. They are often used as a secondary or higher level of treatment after a significant amount of sediment and other pollutants have been removed.

Appropriate Applications

- Effective for the removal of trash, gravel, sand, silt, and some metals, as well as the reduction of biochemical oxygen demand (BOD) and turbidity.
- Can be used for standalone treatment or in conjunction with bag and cartridge filtration if further treatment is required.
- Can also be used to provide additional treatment to water treated via settling or basic filtration.

Implementation

- The filters require delivery to the site and initial setup. The vendor can provide assistance with installation and operation.

Maintenance

- The filters require monthly service to monitor and maintain the level of the sand media.

Pressurized Bag Filter***Description***

A pressurized bag filter is a unit composed of single filter bags made from polyester felt material. The water filters through the unit and is discharged through a header, allowing for the discharge of flow in series to an additional treatment unit. Vendors provide pressurized bag filters in a variety of configurations. Some units include a combination of bag filters and cartridge filters for enhanced contaminant removal.

Appropriate Applications

- Effective for the removal of sediment (sand and silt) and some metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Oil-absorbent bags are available for hydrocarbon removal.
- Can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation

- The filters require delivery to the site and initial setup. The vendor can provide assistance with installation and operation.

Maintenance

- The filter bags require replacement when the pressure differential exceeds the manufacturer's recommendation.

Cartridge Filter



Description

Cartridge filters provide a high degree of pollutant removal by utilizing a number of individual cartridges as part of a larger filtering unit. They are often used as a secondary or higher (polishing) level of treatment after a significant amount of sediment and other pollutants are removed. Units come with various cartridge configurations (for use in series with pressurized bag filters) or with a larger single cartridge filtration unit (with multiple filters within).

Appropriate Applications

Effective for the removal of sediment (sand, silt, and some clays) and metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Hydrocarbons can effectively be removed with special resin cartridges. Filters can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation

- The filters require delivery to the site and initial setup. The vendor can provide assistance.

Maintenance

- The cartridges require replacement when the pressure differential exceeds the manufacturer's recommendation.